

CLEAN VERISION OF PENDING CLAIMS

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3 40. A stringed musical instrument comprising:
4 an elongated neck,
5 a body attached to one end of said neck,
6 a tremolo pivotably mounted on said body,
7 a plurality of strings with a first end and a second end,
8 on said neck, a first critical point on at least one of said strings,
9 said tremolo further comprising:
10 bridge elements forming a support and a second critical point for at
11 least one of said strings,
12 a string anchor engaging said second end of said at least one of said
13 strings,
14 a base plate,
15 a spring, and
16 counter springs with a first end and a second end, said first end of
17 said counter springs connected to said body and said second
18 end of said counter springs secured to said spring for counter
19 balancing the tension of said at least one of said strings,
20 wherein said base plate and said spring further comprises:
21 a unitary component formed from a single folded or bent
22 plate material with a base plate portion and a spring
23 portion so that said unitary component is connected
24 directly to the springs.
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41. The apparatus of claim 40 wherein said string anchor is located in said
portion.

1 42. The apparatus of claim 41 wherein said string anchor further comprises at
2 least one string passageway within said spring portion.

3 43. The apparatus of claim 42 wherein said base plate portion further comprises
4 at least one string hole for threading said at least one of said strings and said at
5 least one string passageway is aligned to said openings in said base portion.

6 44. The apparatus of claim 40 wherein said base plate portion is formed to
7 create at least one tier for displacing the height of at least one said bridge elements
8 relative to said body.

9 45. The apparatus of claim 40 wherein said tremolo further comprises a
10 fulcrum tremolo.

11 46. The apparatus of claim 40 wherein said unitary component has at least one
12 reinforcement arranged between said base plate portion and said spring portion.

13 47. The apparatus of claim 46 wherein said unitary component is formed to
14 create said at least one reinforcement.

15 48. The apparatus of claim 40 wherein said tremolo further comprises a macro-
16 tuner.

17 49. The apparatus of claim 40 wherein said tremolo further comprises a global-
18 tuner.

19 50. The apparatus of claim 45 wherein said fulcrum tremolo further comprises
20 a bearing for adjustably mounting said fulcrum tremolo on said body for pivotal
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1 displacement and said bearing further comprises at least a portion of a ball bearing
2 surface.

3 51. The apparatus of claim 42 wherein said tremolo further comprises a global-
4 tuner.

5 52. The apparatus of claim 44 wherein said tremolo further comprises a macro-
6 tuner.

7 53. The apparatus of claim 44 wherein said tremolo further comprises a global-
8 tuner.

9 54-59 (previously canceled without prejudice)

10 60. A stringed musical instrument comprising:

11 an elongated neck,

12 a body attached to one end of said neck,

13 a tremolo pivotably mounted on said body,

14 a plurality of strings with a first end and a second end,

15 on said neck, a first critical point on at least one of said strings,

16 said tremolo further comprising:

17 bridge elements forming a support and a second critical point for at

18 least one of said strings,

19 a string anchor engaging said second end of said at least one of said

20 strings,

21 a base plate,

22 a spring holder, and

23 counter springs with a first end and a second end, said first end of

24 said counter springs connected to said body and said second
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1 end of said counter springs secured to said spring holder for
2 counter balancing the tension of said at least one of said
3 strings,

4 wherein said base plate and said spring holder further comprises:

5 a unitary component formed from a single folded or bent plate
6 material with a base plate portion and a spring portion so that
7 said unitary component is connected directly to the springs.

8 61. The apparatus of claim 60 wherein said string anchor is located in said
9 spring portion.

10 62. The apparatus of claim 61 wherein said string anchor further comprises at
11 least one string passageway within said spring portion.

12 63. The apparatus of claim 62 wherein said base plate portion further comprises
13 at least one string hole for threading said at least one of said strings and said at
14 least one string passageway is aligned to said at least one string hole in said base
15 plate portion.

16 64. The apparatus of claim 60 wherein said base plate portion is formed to
17 create at least one tier for displacing the height of at least one said bridge elements
18 relative to said body.

19 65. The apparatus of claim 60 wherein said tremolo further comprises a
20 fulcrum tremolo wherein said base plate is pivotally mounted about a fulcrum axis
21 that is extending transverse to the axis of said strings for changing the pitch of all
22 said strings at one time as said base plate is pivoted.
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1 66. The apparatus of claim 65 wherein said fulcrum tremolo further comprises
2 a global tuner.

3 67. The apparatus of claim 65 wherein the fulcrum tremolo further comprises a
4 bearing for pivotably mounting said fulcrum tremolo on said body and said
5 bearing further comprises at least a portion of a ball bearing surface.

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7 68. The apparatus of claim 67 wherein said fulcrum tremolo further comprises:
8 a string tensioner positioned on the opposite side of said bridge elements
9 from the first critical point on said unitary component to raise and
10 adjust the tension of said strings from an untensioned condition to a
11 proper playing pitch,
12 wherein said string tensioner has a string holder element comprising:
13 a first portion closer to said second critical point,
14 a second portion more remote from said second critical point, and
15 a restricted interior portion located in said second portion, said
16 restricted interior portion of string holder element holds said
17 string anchoring portion,
18 said string holder element being displaceable between a first limiting
19 position closest said second critical point and a second limiting
20 position more remote said second critical point,
21 said first end of said string holder element in spaced relation from said
22 second critical point in and between said first and second limiting
23 positions,
24 wherein said string anchoring portion is located a critical distance from said
25 second critical point such that said at least one string is rendered

substantially inextensible between said second critical point and said string anchor.

69. The apparatus of claim 67 wherein said fulcrum tremolo further comprises a global tuner.

70. The apparatus of claim 67 wherein said fulcrum tremolo further comprises: at least one string anchor located on the opposite side of said second critical point from said first critical point and positioned a critical distance from said second critical point such that said at least one string is rendered substantially inextensible between said second critical point and said string anchor.

71. The apparatus of claim 67 wherein said bearing further comprises: a ring bearing, and a vertical adjustment screw for vertically displacing the base relative to the body, wherein the vertical adjustment screw intersects the pivot axis.

72. The apparatus of claim 71 wherein said fulcrum tremolo further comprises: a string tensioner positioned on the opposite side of said bridge elements from the first critical point on said unitary component to raise and adjust the tension of said strings from an untensioned condition to a proper playing pitch, wherein said string tensioner has a string holder element further comprises: a first portion closer to said second critical point, a second portion more remote from said second critical point, and

1 a restricted interior portion located in said second portion, said
2 restricted interior portion of string holder element holds said
3 string anchoring portion,
4 said string holder element being displaceable between a first limiting
5 position closest said second critical point and a second limiting
6 position more remote said second critical point,
7 said first end of said string holder element in spaced relation from said
8 second critical point in and between said first and second limiting
9 positions,
10 wherein said string anchoring portion is located a critical distance from said
11 second critical point such that said at least one string is rendered
12 substantially inextensible between said second critical point and said
13 string anchor.

- 13 73. A stringed musical instrument comprising:
14 a body,
15 a neck extending outwardly from said body,
16 at least one string extending from said body to said neck, said at least one
17 string having a first end and a second end, said second end of at least
18 one string having an anchoring portion that is thicker than the
19 diameter of said at least one string,
20 a first critical point for said at least one string on said neck,
21 a second critical point for said at least one string on a fulcrum tremolo,
22 said fulcrum tremolo includes a base plate,
23 said base plate being pivotally mounted about a fulcrum axis extending
24 transversely of said strings for changing the pitch of all said strings
25 at one time as said base plate is pivoted,
a string anchor to receive said anchoring portion located on said base,

wherein at least one string anchor located on the opposite side of said second critical point from said first critical point and positioned a critical distance from said second critical point such that said at least one string is rendered substantially inextensible between said second critical point and said string anchor.

74. The apparatus of claim 63 wherein said anchoring portion further comprises wrappings wherein the length of said wrappings being slightly less than the distance between the second critical point and said string anchor.

75. A tuning apparatus for a stringed musical instrument comprising:
a body,
a neck extending outwardly from said body,
at least one string extending from said body to said neck, said at least one string having a first end and a second end, said second end of said at least one string having an anchoring portion that is thicker than the diameter of said at least one string,
a first critical point for said at least one string on said neck,
a second critical point said at least one string on a fulcrum tremolo, said fulcrum tremolo includes a base plate, said base plate being pivotally mounted about a fulcrum axis extending transversely of said strings for changing the pitch of all said strings at one time as said base plate is pivoted,
a string tensioner positioned on the opposite side of said bridge elements from the first critical point to raise and adjust the tension of said strings from an untensioned condition to a proper playing pitch, wherein said string tensioner has a string holder element comprising:
a first portion closer to said second critical point, and

1 a second portion more remote from said second critical point and a
2 restricted interior portion located in said second portion, said
3 restricted interior portion of string holder element holds said
4 string anchoring portion,
5 said string holder element being displaceable between a first limiting
6 position closest said second critical point and a second
7 limiting position more remote said second critical point,
8 said first end of said string holder element in spaced relation from
9 said second critical point in and between said first and second
10 limiting positions,
11 said restricted interior portion of said string holder element holds
12 said anchoring portion wherein said anchoring portion is
13 located a critical distance from said second critical point such
14 that said at least one string is rendered substantially
15 inextensible between said second critical point and said string
16 anchor.
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19 76. The tuning apparatus of claim 75 wherein said anchoring portion further
20 comprises wrappings wherein the length of said wrappings being slightly less than
21 the distance between the second critical point and said string anchor.
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23 77. A stringed musical instrument comprising:
24 an elongated neck;
25 a body attached to one end of the said neck,
a plurality of strings with a first end and a second end, said second end of
said strings having an anchoring portion that is thicker than the
diameter of said string,
a first critical point for each of said strings on said neck,

1 a fulcrum tremolo, said fulcrum tremolo including at least one bridge
2 element forming a support and a second critical point for at least one
3 of said strings, said fulcrum tremolo including a base plate, said base
4 plate being pivotally mounted about a fulcrum axis that is extending
5 transverse to the axis of said strings for changing the pitch of all said
6 strings at one time as said base plate is pivoted,
7 a string anchor to engage said second end of said at least one of said strings,
8 a spring holder,
9 counter springs with a first end and a second end, said first end of said
10 counter springs connected to said body and said second end of said
11 counter springs secured to said spring holder to counter balance
12 tension of said at least one of said strings,
13 said base plate and said spring holder further comprises a unitary
14 component formed from a single folded or bent plate material with a
15 base plate portion,
16 wherein the spring holder is formed into a portion of the unitary component
17 so that said unitary component is connected directly to the counter
18 springs,
19 wherein said string anchor is located in said spring holder portion, said
20 string anchor further comprises at least one string passageway within
21 said spring holder portion, said base plate portion further comprises
22 string holes for threading said at least one of said strings and said at
23 least one string passageway is aligned to said openings in said base
24 portion,
25 wherein an alternate string anchor is positioned on the opposite side of at
least one said second critical point from said first critical point and
located a critical distance from said second critical point such that
said at least one string is rendered substantially inextensible between
said second critical point and said string anchor.

1 78. The stringed musical instrument of claim 77 wherein said alternate string
2 anchor further comprises:

3 a separate mount of said strings on said base plate to raise and to adjust the
4 tension of said strings from an untensioned condition to a proper
5 playing pitch,
6 said separate mount includes a string tensioner on opposite side of said
7 bridge element from said first critical point,
8 said string tensioner has a string holder element,
9 said string holder element has a first portion closer to said second critical
10 point and a second portion more remote from said second critical
11 point,
12 said string holder element includes a restricted interior portion located in
13 said second portion,
14 said string holder element being displaceable between a first limiting
15 position closest said second critical point and a second limiting
16 position more remote said second critical point,
17 said first end of said string holder element in spaced relation from said
18 second critical point in and between said first and second limiting
19 positions,
20 said restricted interior portion of said string holder element holds said
21 anchoring portion wherein said anchoring portion is located a critical
22 distance from said second critical point such that said at least one
23 string is rendered substantially inextensible between said second
24 critical point and said string anchor.
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23 79. A stringed musical instrument comprising:
24 at least one string with a first end and a second end;
25 an elongated neck,

1 a body attached to one end of said neck,
2 a fulcrum tremolo,
3 said fulcrum tremolo is pivotally mounted about a fulcrum axis that is
4 transverse the axis of said at least one said string for changing the
5 pitch of said at least one of said string,
6 a nut on said neck to form a first critical point and support said at least one
7 said string,
8 the fulcrum tremolo further comprising:
9 at least one bridge element to form a second critical point and to support
10 said at least one said string,
11 a string anchor engaging said second end of said at least one said string
12 further comprising a base portion,
13 a biasing element connected to the body wherein the biasing force of the
14 biasing element tends to pivot the fulcrum tremolo in a first direction
15 against the tendency to pivot the base in a second direction in
16 response to the tension in the strings; and
17 wherein said fulcrum tremolo further comprises a bent plate so that said
18 bent plate is connected directly to the biasing element.

19 80. The stringed musical instrument of claim 79 wherein said fulcrum tremolo
20 further comprises a bearing for adjustably mounting said fulcrum tremolo on said
21 body for pivotal displacement and said bearing further comprises at least a portion
22 of a ball bearing surface.

23 81. The stringed musical instrument of claim 80 wherein said base portion is
24 formed to create at least one tier for displacing the height of at least one said
25 bridge elements relative to said body.

1 82. The stringed musical instrument of claim 81 wherein said at least a portion
2 of a ball bearing surface further comprises at least one ring bearing;

3 said at least one ring bearing further comprises an outer portion and an
4 inner portion and said inner portion essentially pivots with said
5 string anchor as said fulcrum tremolo is pivoted for changing the
6 pitch of said at least one said string.

7 83. A fulcrum tremolo operable with a musical instrument, the musical
8 instrument comprising:

9 a body,
10 a neck having a nut, and
11 at least one string connected to the body and the neck;

12 the fulcrum tremolo comprising:

13 a base mounted to the body, the base having a first end closer the nut
14 and a second end further from the nut,

15 the fulcrum tremolo having a pivot axis that is transverse the
16 direction of at least one string,

17 a tremolo arm manually operable to pivot the base about the fulcrum
18 axis to produce a tremolo effect,

19 a bearing portion creating the pivot axis on said fulcrum tremolo,
20 said bearing portion comprising at least one bearing portion,
21 said bearing portion further comprising at least a portion of a
22 ball bearing surface and at least one shaft connected to said
23 fulcrum tremolo, and

24 at least one vertical adjustment screw for vertically displacing the
25 base relative to the body, the vertical adjustment screw
having a vertical axis,

wherein said pivot axis is positioned within an area beginning with
and including the vertical axis and extending to the second
end of said base.

84. The fulcrum tremolo of claim 83 wherein said at least one bearing portion further comprises an inner portion and an outer portion, the inner portion is connected to the fulcrum tremolo so that the inner portion essentially pivots with the base while the outer portion essentially maintains its relative position to the adjustment screw when the fulcrum tremolo is pivoted to produce the tremolo effect.

85. The fulcrum tremolo of claim 84 wherein said at least one bearing portion further comprises an inner portion and an outer portion, the inner portion is connected to the fulcrum tremolo so that the outer portion essentially pivots with the base while the inner portion essentially maintains its relative position to the adjustment screw when the fulcrum tremolo is pivoted to produce the tremolo effect.